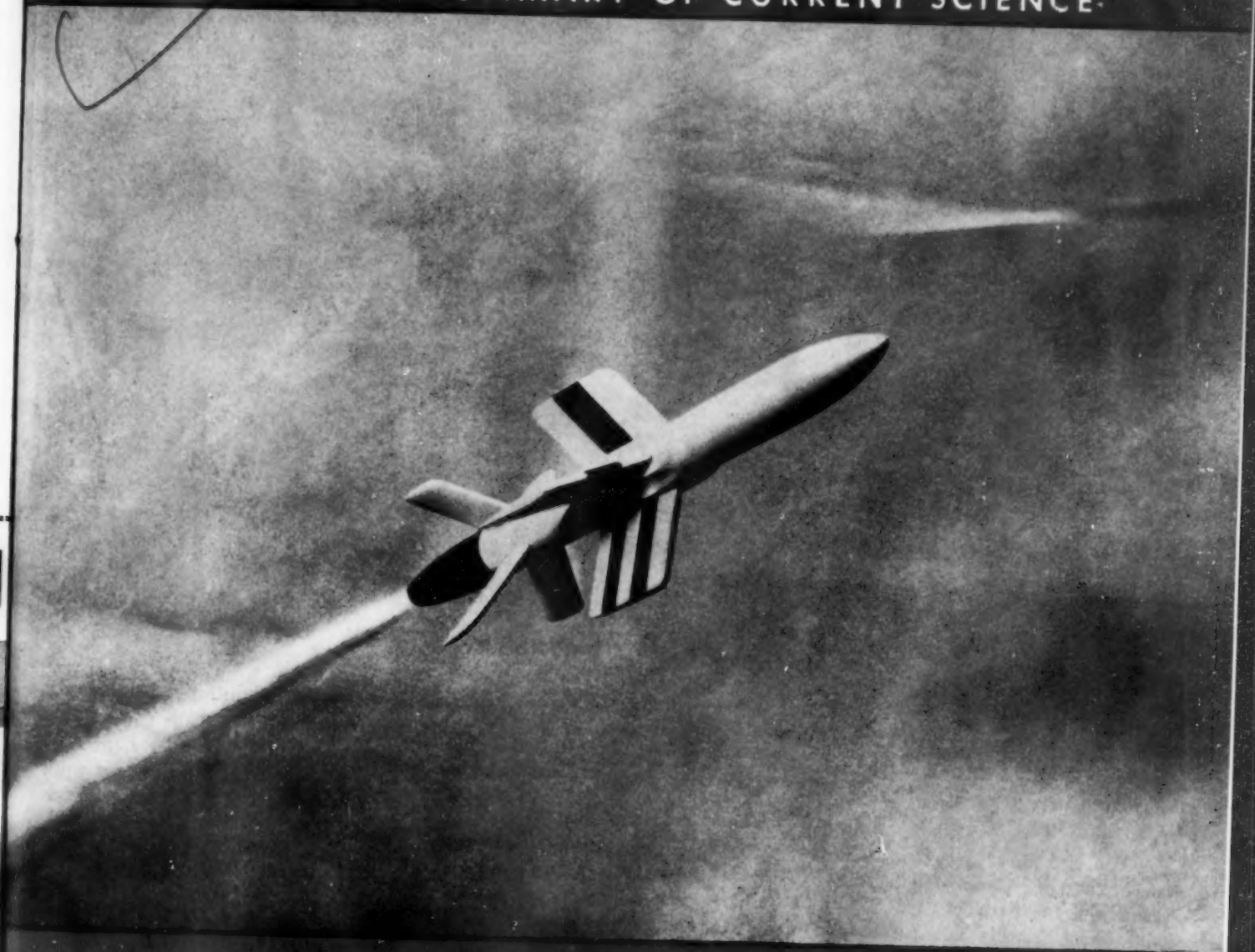
15¢

NOVEMBER 19, 1949

SCIENCE NEWS LETTER

PUBLIC LIBRARY
NOV 24 1949
DETROIT

THE WEEKLY SUMMARY OF CURRENT SCIENCE



Plane-Launched Rocket

See Page 326

A SCIENCE SERVICE PUBLICATION

$5.50 A YEAR

VOL. 56 NO. 21 PAGES 321-336

Deep are their **roots**

With television, you see far beyond the horizon. Radio brings you sounds from around the world. Electron microscopes peer deep into the world of the infinitesimal.

These, and other "leaves" on our new tree of knowledge are rooted in creative research—as carried out at RCA Laboratories in Princeton, N. J. Here, research scientists seek new scientific principles, improve on old ones, or put them to new uses.

Already on their achievement list are hundreds of important and basic developments in electronics, television, radio, electron tubes, radar, and recorded music. RCA research works continually to give you better products.

Examples now working for you include: Today's sharp-eyed Image Orthicon television cameras, television picture tubes, compact portable radios made possible by tiny new RCA electron tubes, the 45-rpm record-playing system with the fastest record changer ever devised and distortion-free records.

Research in your behalf: Creative research into new principles is another way in which RCA Laboratories work to improve your way of living. Leadership in science and engineering adds *value beyond price* to any product or service of RCA and RCA Victor.

Examples of the newest advances in radio, television, and electronics—in action—may be seen at RCA Exhibition Hall, 36 West 49th St., N. Y. Admission is free. Radio Corporation of America, Radio City, N. Y. 20.

RADIO CORPORATION of AMERICA

World Leader in Radio—First in Television

PALEONTOLOGY

Find Fossils' Mother Lode

Hundreds of these specimens were brought back from the Colombian site where they were discovered and will be studied to learn about prehistoric times.

➤ THE discovery of a mother lode of fossils that will greatly expand science's picture of life in South America in prehistoric times, is described as one of the most important paleontological finds of this century. The find was reported to the meeting of the Geological Society of America in El Paso, Tex.

Results of excavations at the site, in the isolated Magdalena Valley of Colombia, were reported by Dr. R. A. Stirton, University of California paleontologist, and his associate, Robert Fields. Dr. Stirton has made three trips to the region since 1944, and Mr. Fields recently returned from there after making geological maps of the area and intensive collecting of fossils.

The find is important for many reasons, Dr. Stirton said. The fossil specimens are prolific and varied, the fossil bed is at the migrational doorway of South America, it is the first important fossil record of South America outside Argentina, and it is the first abundant record of the tropical region of South America.

The hundreds of specimens brought back will make it possible to learn much about life in the age of mammals in South America, previously unknown because few relics had been found.

The fossils include those of monkeys, rodents, snakes, lizards, birds, lung fish, the tooth of a sea cow, and giant crocodiles.

Dr. Stirton said that three types of fossils are particularly noteworthy: the monkeys, an ancient extinct guinea pig, and a condylarth, primitive extinct dog-like creature with hoofs.

Two new genera and one new species of monkey are in the collection, only the Argentine Homunculus previously being known in the South American fossil record. One of the monkeys was so unusual that Dr. Stirton was unable to classify it until a few days before the meeting.

The condylarth, ancestor of the modern horse, deer, camel and other hoofed animals, is believed to have become extinct about 50,000,000 years ago, but in the agreeable tropical climate of Colombia lived until 15,000,000 or 20,000,000 years ago. The rarity of this animal in the fossil bed—only part of a lower jaw was found—where other species were prolific, indicates that the condylarth was becoming extremely rare at that time.

The fossil guinea pig in question is believed to have arisen less than 10,000,000 years ago, but the Colombian specimens go back about 20,000,000 years.

The fossil bed extends over an area of about 250 square miles of the valley. In prehistoric times a major river ran through the valley, and the animals were trapped in mudflats along the river. Today the region is arid, and thundershowers often expose fossils which lie close to the surface.

Science News Letter, November 19, 1949

BOTANY

High Yield Buffalo Grass Will Be Available Soon

➤ AN unusually high yield forage, a hybrid buffalo grass that is the culmination of extensive breeding experiments, will shortly be available to growers throughout the Southern Great Plains region.

Because buffalo grass has both male and female plants, unusual in range grasses, it will be necessary to raise hybrid seed and distribute it in much the same way that hybrid corn is distributed.

Dr. Jack Harlan, grass breeder at the U. S. Great Plains Field Station in Woodward, Okla., explains that he is developing the new high yield hybrids by combining the heavy forage qualities of one type with the prolific seed-production of another type. Special breeding work has produced seedy types that are predominantly female and these are pollinated with forage types. The final selection, hybrid seed of the desired type, entails from eight to 15 crosses, he says.

Science News Letter, November 19, 1949

ARCHAEOLOGY

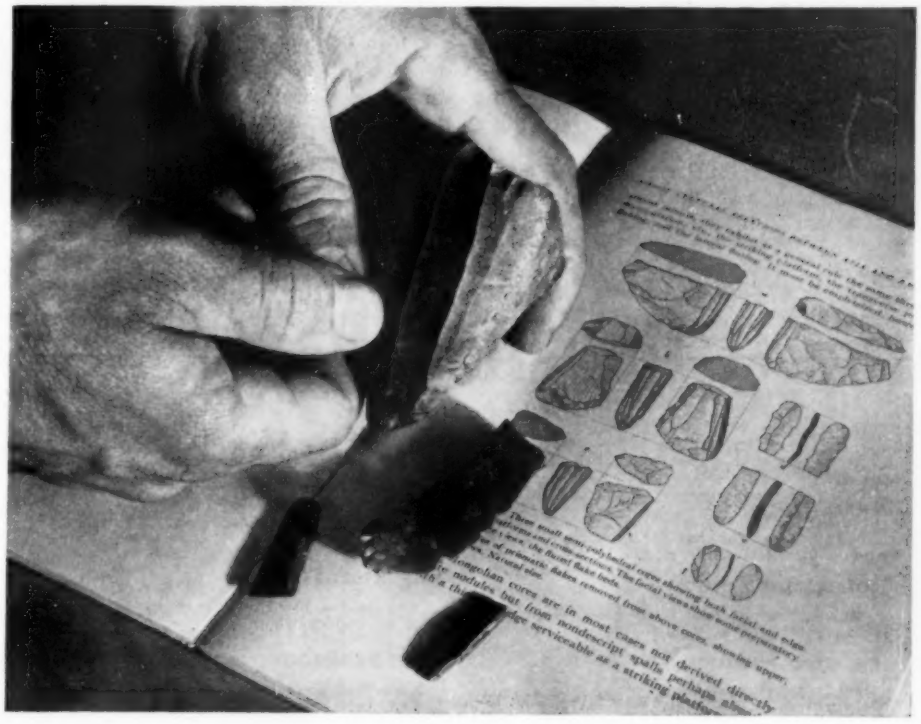
Fossil Find Shows First Americans Came from Asia

➤ NEW evidence that the first Americans came from Asia through Alaska has been dug from the frozen soil of the Far North by Dr. Ralph S. Solecki of the Smithsonian Institution, Washington, D. C.

Exposed by centuries of erosion on an Alaskan mountain top, Dr. Solecki made the lucky find of some curious stone implements. Importance of the discovery lies in the fact that they are just like some found previously on the other side of the world in the Gobi Desert. These Gobi Desert implements have been identified as used by a primitive people who lived in Mesolithic times, between the Old Stone Age and the New Stone Age.

Dr. Solecki's finds were made in an area that was never glaciated and which probably some 10,000 years ago formed part of an ice free corridor through which the first Americans may have passed during their long trek from Asia to their final home in the New World.

Science News Letter, November 19, 1949



LINKS EAST AND WEST—This stone implement found in the frozen solid of an Alaskan mountain is just like some found previously in the Gobi Desert and identified as made some 10,000 years ago.

MEDICINE

Restoring Sight, Sound

Based on nerve research now in progress, prediction was made that stimulating the brain electrically would restore sight, hearing and motion to the disabled.

➤ MAKING the lame walk, the blind see and the deaf hear will come out of the realm of miracles and into everyday life when brain and nerve research now under way reaches its goal.

Some of the research which, in theory, makes possible this prediction was reported by Prof. Wendell J. S. Krieg of Northwestern University Medical School at a meeting at the University's campus in Evanston, Ill.

Electrodes placed in or on the brain, to stimulate by electrical impulse the motor points of muscles or the seeing and hearing points of the brain, are the means which Prof. Krieg believes will accomplish the miracles.

A person who has become blind may again obtain the sensation of light if a point at the back of the brain is stimulated electrically, he said. If a number of electrodes were distributed over the surface of the brain in a prearranged pattern or sequence, the person might perceive outline or movement. He could read if single letters were transmitted one at a time as in news flash signs by trainer operating a typewriter whose keys set off electrical switch patterns.

"It is only a technological step," Prof. Krieg said, "to devise an appliance to scan the visual field in the same manner as a television scanner and to transmit that which is seen and recorded to the cortex (of the brain) in the same sequence and scanning pattern."

The fact that man sees and hears with his brain, not with his eyes and ears, is what makes such applications possible. Eyes and ears merely receive and transmit stimuli. Use of electrodes to provide the stimulating signals will become possible, Prof. Krieg believes, as scientists learn more about the brain and nerve tracts and which ones to stimulate for sight, hearing and muscle movement.

Although much basic study will be needed before the theory can be put into practice, it "is not so much in the clouds as it sounds," Dr. Richard H. Young, dean of Northwestern's medical school, commented.

Future progress and research in neurology will be in this direction, he said, and achieving the goal of restoring sight, hearing and muscle movement is "perfectly possible."

Science News Letter, November 19, 1949

PSYCHOLOGY

Old Brain Drives the Intellect Via Feelings

➤ THE old brain, old in the sense that it came first in man's evolutionary development, deserves more credit than it usually gets, Dr. Stanley Cobb, Harvard University neurologist and psychiatrist, declared at the New York Academy of Medicine in New York.

This old brain is the part of the brain through which we feel and smell and it is much more than a relic left over from an earlier evolutionary stage for the lost art of living by smell.

"To the sorrow of many persons who believe they can rule their emotions by intellectual will power," Dr. Cobb said, this earlier evolved brain, because it is the feeling brain, drives the intellect, motivates it and mobilizes the body to action.

But the hypothalamus, that walnut-sized part of the old brain which controls many vital funtions, is not, Dr. Cobb said, "the seat of the emotions" as it has been called.

Among the functions under the influence of the hypothalamus are temperature control, water excretion, fat and sugar utilization, sleep and consciousness, blood pressure, and to some extent sexual function.

Science News Letter, November 19, 1949

Question Box

AERONAUTICS

What new kind of rocket has been developed? p. 326.

BIOLOGY-BOTANY

What fleshy fruit has for the first time been grown in a test tube? p. 331.

BOTANY-METEOROLOGY

How are commercial crops grown near cities being damaged? p. 325.

CHEMISTRY-NUTRITION

What laws are needed to guard our food? p. 327.

MEDICINE

How can radar help against cancer? p. 332.

What may make the lame walk, the blind see and the deaf hear? p. 324.

When is the brain ready to start thinking? p. 332.

PALEONTOLOGY

Why is the fossil find in Colombia considered so important? p. 323.

PLANT PATHOLOGY

What has been found to cause the winterkill of grasses? p. 325.

Photographs: Cover, U. S. Air Force; p. 323, Fremont Davis; p. 325, University of Washington; p. 327, Northrop Aircraft, Inc.; p. 330, p. 331, Department of Agriculture.

SCIENCE NEWS LETTER
VOL. 56 NOVEMBER 19, 1949 No. 21

49,200 copies of this issue printed

The Weekly Summary of Current Science, published every Saturday by SCIENCE SERVICE, Inc., 1719 N St., N. W., Washington 6, D. C., NOrth 2255. Edited by WATSON DAVIS.

Subscription rates: 1 yr., $5.50; 2 yrs., $10.00; 3 yrs., $14.50; single copy, 15 cents, more than six months old, 25 cents. No charge for foreign postage.

Change of address: Three weeks notice is required. When ordering a change, please state exactly how magazine is now addressed. Your new address should include postal zone number if you have one.

Copyright, 1949, by Science Service, Inc. Republication of any portion of SCIENCE NEWS LETTER is strictly prohibited. Newspapers, magazines and other publications are invited to avail themselves of the numerous syndicate services issued by Science Service. Science Service also publishes CHEMISTRY (monthly) and THINGS of Science (monthly).

Printed in U. S. A. Entered as second class matter at the post office at Washington, D. C. under the act of March 3, 1879. Established in mimeographed form March 18, 1922. Title registered as trademark, U. S. and Canadian Patent Offices. Indexed in Readers' Guide to periodical Literature, Abridged Guide, and the Engineering Index.

Member Audit Bureau of Circulation. Advertising Representatives: Howland and Howland, Inc., 393 7th Ave., N.Y.C., PEnnsylvania 6-5566 and 360 N. Michigan Ave., Chicago. STAte 4439.

SCIENCE SERVICE

The Institution for the Popularization of Science organized 1921 as a non-profit corporation.

Board of Trustees—Nominated by the American Association for the Advancement of Science: Edwin G. Conklin, Princeton University; Karl Lark-Horovitz, Purdue University; Kirtley F. Mather, Harvard University. Nominated by the National Academy of Sciences; Harlow Shapley, Harvard College Observatory; R. A. Millikan, California Institute of Technology; L. A. Maynard, Cornell University. Nominated by the National Research Council: Ross G. Harrison, Yale University; Alexander Wetmore, Secretary, Smithsonian Institution; Rene J. Dubos, Rockefeller Institute for Medical Research. Nominated by the Journalistic Profession: A. H. Kirchhofer, Buffalo Evening News; Neil H. Swanson, Baltimore Sun Papers; O. W. Riegel, Washington and Lee School of Journalism. Nominated by the E. W. Scripps Estate: H. L. Smithton, E. W. Scripps Trust; Frank R. Ford, Evansville Press; Charles E. Scripps, Scripps Howard Newspapers.

Officers—President: Harlow Shapley, Vice President and chairman of Executive Committee: Alexander Wetmore, Treasurer; O. W. Riegel, Secretary; Watson Davis.

Staff—Director: Watson Davis. Writers: Jane Stafford, A. C. Monahan, Marjorie Van de Water, Lydia Schweiger, Ann Ewing. Science Clubs of America: Joseph H. Kraus, Margaret E. Patterson. Photography: Fremont Davis. Sales and Advertising: Hallie Jenkins. Production: Priscilla Howe. In London: J. G. Feinberg.

BOTANY-METEOROLOGY

Smog Injures Crops

Man-made pollution is costing thousands of dollars a year in damages to commercial vegetable and plant crops growing near industrial centers.

➤ AMERICA'S increasing smoke and fume nuisance probably causes hundreds of thousands of dollars damage each year to commercial vegetable and other plant crops grown in the vicinity of large cities.

Dr. F. W. Went of the California Institute of Technology reported this fact to members of the National Air Pollution Symposium meeting in Pasadena, Calif.

Previously botanists had found that lichens disappeared from trees and rocks near industrial areas and that the growing of plants in large-city greenhouses is becoming more difficult.

But during the past five years, said Dr. Went, a new type of plant injury had been observed in the smog-ridden Los Angeles area. This is a brown, dried spot injury, due to gaseous contaminants in the air. It has made such leafy commercial vegetables as spinach, endive and romaine unsalable.

"Since the damage is known to run into the thousands of dollars, and since no one single agency can be held accountable for the smog," said Dr. Went, "it becomes very important to establish beyond any reasonable doubt that this injury to plants is really smog damage.

"This damage is of such frequent occurrence that profitable culture of certain vegetables becomes almost impossible in some areas. This injury always follows days of extra heavy smog."

In work now being carried out in the Earhart Plant Research Laboratory at the California Institute of Technology, with the support of the Los Angeles County Air Pollution Control District and the University of California, Dr. Went and his associates are trying to determine which particular air-borne contaminants are responsible for the brown, dried spot injury.

The effects of concentrations of gases, known to occur in smog, are being tested on spinach, endive, romaine, beets, gladiolus, alfalfa, barley and tobacco.

"It can be assumed that most gases injurious to plants would be harmful to animals as well," Dr. Went pointed out. "For these reasons an attack on the smog problem from the plant angle seems worth while."

Dr. Went declared that man-made air pollution is at least partly caused by upsetting the natural cycle of assimilation and dissimilation by man.

"Instead of letting microorganisms decompose plant and animal remains," he said, "we burn them in a usually very ineffective way. Thus we not only produce air pollution, but also rob the soil of its natural source of fertility: humus."

What is the solution?

Dr. Went believes that one of the most worthwhile contributions to smog abatement would be the organization of city-wide composting of refuse, hedge clippings, leaves and other combustible materials.

If this were well-organized, he thinks that collection and production costs could be paid out of the sale-value of the compost produced. This would improve soils which, in semi-arid and warm climates especially, are rapidly depleted of organic materials.

"Thus smog abatement and soil improvement become two aspects of the same problem which can go hand in hand toward amelioration of our environment—air and soil—using the processes which in nature have maintained an equilibrium for so many millions of years.

Science News Letter, November 19, 1949

GAGING BODY TEMPERATURE —This suit is wired to keep in touch with 38 different parts of the body and is being used to study the effect of Arctic temperatures on the body.

PHYSIOLOGY

Design Apparatus To Study Body's Reaction To Cold

➤ A UNIQUE cold weather apparatus, which can measure the skin temperature and heat loss of 38 different areas of the body, is being used in sub-zero studies.

It is a hooded suit with built-in tubes and wires that connect with 38 body points. It works something like a telephone switchboard for you can dial any part of the body and receive its response recorded on a graph.

In addition, a chest panel on the suit is connected to another piece of apparatus which measures the heat production of the body.

Designed by University of Washington scientists, in Seattle, Wash., it was taken recently to Alaska to study the effects of Arctic temperatures on the human body. Dr. Loren D. Carlson heads the expedition. Other members of the party are Dr. Allan Young and Wayne Quinton who were in charge of the design and construction of the apparatus, and Henry Burns who designed the suit.

They will act as their own guinea pigs, operating from a mobile laboratory which will enable them to make tests under varying temperatures ranging down to 40 degrees below zero. Since the Air Materiel Command of the U. S. Air Force is sponsoring the project, headquarters are at the Arctic Aeromedical Laboratory at Ladd Field, Fairbanks.

The study should reveal what physical characteristics make men best suited for life in the Arctic and how the body can be made more resistant to extreme cold, Dr. Carlson said.

Science News Letter, November 19, 1949

PLANT PATHOLOGY

Fungus Not Frost Causes Winterkill

➤ JACK Frost has been acquitted. For years farmers have held him guilty of winterkill, that annual round of cold-weather killings that takes such a heavy toll among the pasture grasses.

Long and patient detective work has finally revealed the true culprit, a cold-weather fungus with a string of aliases and a long record as a crop-spoiler. It goes by the names of crown rot, stem rot, and, when it moves in scientific circles, *Sclerotinia trifoliorum*.

Each year when the cool weather starts setting in, it has been noted that winter annual and perennial legumes, the pasture grasses like alfalfa, red clover, Ladino clover and others, are subject to an attack of what has been called up to now, winterkill. It was thought that frost and freezing caused it.

But plant pathologists at the U. S. Department of Agriculture's Regional Pasture Research Laboratory in State College, Pa., have now demonstrated that it is caused by this fungus, which lies dormant during the warm weather and stirs to its lethal activities as soon as the temperature starts to drop.

Science News Letter, November 19, 1949

AERONAUTICS

British Jets Spur U. S.

America and Russia used the British Whittle jet engine as basic model for their own development. This first engine has been given to America by the British.

➤ THE British "ancestor" of American jet engines, just presented to the American nation by the British Ambassador, Sir Oliver Franks, is the first engine of the type to power a British airplane in flight. It is the engine brought to the United States in 1941 and used here as a model in developing American jets. Russia later used Whittles as models.

This engine, known as the WIX, was the invention of a brilliant young Englishman named Frank Whittle, now Sir Frank Whittle. Jet-propulsion became his dream when a cadet in 1928. In 1936 he formed a company to build jets. Early engines were failures but success soon followed. With a special plane constructed for the purpose and a Whittle engine, flying tests made in the spring of 1941 proved a complete success.

When the WIX was brought to the United States, it was delivered to the General Electric Company at Lynn, Mass., by a small team of British engineers, together with complete drawings and technical data. It is another example of the complete collaboration between Britain and America in the scientific development of needed war aids, such as radar for example.

The idea of jet-propulsion was not new in America when this engine arrived. In 1923, the National Advisory Committee for Aeronautics published a report by Edgar Buckingham of the National Bureau of Standards relative to the future of jet propulsion. However, America's attention was directed toward better reciprocating engines, and better planes, until aroused by reports of German jet-propulsion activities.

A German jet-propelled plane actually flew in 1938, it was reported. However, it was not until 1942 that Hitler awoke to the possibilities of jet-propulsion in his war effort. Two years later, such planes were in production. The part they played in the war was minor, but they did spur both English and American development, although neither of these nations produced a jet-propelled plane that actually took part in combat.

To Britain belongs the credit for leadership in jet-propulsion of the type now employed. Which nation is actually in the lead today in the development of airplane gas turbines is debatable, although England claims the leadership and many Americans in a postion to know agree with the British. It is certain that England had the first jet-propelled commercial airliner and probably leads in the use of the turbo-prop engine. This type of propulsion combines the efficiency of the gas turbine with conventional bladed propellers. It is already in use in the United States and probably will be in very wide usage in transports in the near future.

American jet engines today are vastly improved over the WIX that came from England in 1941. So are the British jets. Details of progress in Russia are not known outside the Iron Curtain, but the Soviets got a considerable number of Whittle jet engines from England under a wartime agreement. Russia's jets are perhaps based on the English Whittle, although Russia acquired at the close of the war some of the German jet engines and also took to the homeland some of the German scientists who had worked on the Nazi power plant. The Soviet jet engine of today may be a "hybrid" affair, with both English and German ancestry.

Science News Letter, November 19, 1949

AERONAUTICS

Air-to-Air Rocket Bomb

See Front Cover

➤ A GUIDED missile for launching from an airplane against enemy aircraft, which has already passed successful tests in the air, was revealed by the Ryan Aeronautical Company, San Diego, Calif.

It is a 10-foot, winged, rocket-powered bomb with a warhead designed to explode when it is close enough to an enemy aircraft to insure destruction. If it misses its target, the warhead is automatically detonated in the air. Because of its small size and the speed obtained from its rocket power, it is a missile hard to track even on radar scopes.

The missile was developed for the U. S. Air Force and is said to be the first air-to-air type yet constructed. Air-to-air is a term used for a missile to be launched from one plane against another, both in the air. Its popular name is the Ryan Firebird, but in military terms it is the XAAM-A-1, which is short for experimental, air-to-air missile, Air Force, first model.

The Ryan Firebird is carried suspended under the wings of a jet fighter or bomber. When released, with its radar device homed on a target, it has the speed of its mother ship plus the added power of its own booster rocket and finally its flight rockets, as shown on this week's cover of the SCIENCE NEWS LETTER. It is capable of heading off and destroying its objective in a matter of seconds.

This air-to-air missile can be used effectively at night or in bad weather since visual sighting is not required. The missile's mother plane detects the enemy by radar. A complicated radar navigational and electronic system in the Firebird takes over when the missile is launched.

There is a similarity between the Ryan Firebird and the Navy Bat which was developed during the war. The Bat was shaped like a small plane, was airborne by a bomber, but had no propulsion power except that of its mother plane and gravity. It was an air-to-ground missile. Radar equipment in its nose, homed on a target located visually or by radar, was set by remote control in the carrier craft to head it directly for its objective. It did not use the wartime proximity fuse to cause explosion, but exploded on contact.

Science News Letter, November 19, 1949

VETERINARY MEDICINE

Artificial Insemination On Increase in U.S. Herds

➤ INCREASED practice of artificial insemination is boosting the cow population by about one per herd, the additional cow being supported by feed that formerly went to the bull.

Although they would not estimate the number of bulls that have been replaced in this way, dairy specialists of the U. S. Department of Agriculture said that at the beginning of the year nearly 2,000 bulls were in service in artificial-breeding associations.

Each of these sires served by means of artificial insemination an average of 1,250 cows each. This of course is many more than an individual stud bull would be able to serve by the natural method.

That the practice is on the increase is evident in some Bureau of Dairy Industry figures: the bureau estimates that by the end of 1949, 10% of all dairy cows in the country will have been bred artificially. In some states the figure is as high as 25%.

The advantages of the method include the following: An important saving in feed and investment which results from a herd's not having to keep its own bull. Increased safety on the dairy farm which does not run the hazards of an unpredictable bull. The most important advantage is that artificial insemination gives the widest possible spread to the usefulness of a high quality sire. Individual dairy farmers can breed their cows with the best, without having to own the bull themselves. This would be very expensive even if there were enough prime bulls to go around.

Science News Letter, November 19, 1949

CHEMISTRY-NUTRITION

Need Laws To Guard Food

Protection of foods by pre-testing chemicals added to them should be required by law just as drug testing is. Guesswork presents a health threat.

➤ CHEMICALS added to food, either to enhance its qualities or to protect it from plant pests, are a potential source of danger to our health. This warning was given by Dr. W. B. White, chief of the Division of Food, U. S. Food and Drug Administration in Washington, to the American Public Health Association meeting in New York.

We need laws to protect the safety of foods by pre-testing of chemicals added to them, just as the present laws cover the safety of new drugs before they are released on the market, Dr. White declared.

Many chemicals, he said, are pre-tested for wholesomeness but a few have only been guessed at. The result in one case was over 100 deaths and in another permanent leg paralysis in several hundred persons. The deaths were caused by the incautious adding of the poisonous chemical diethylene glycol to elixir of sulfanilamide by a young chemist who thought it would be an ideal solvent for the drug. The many paralysis patients were the victims of a poisonous chemical added to alcohol during prohibition days.

These kinds of accidents are forestalled now by the Food and Drug Act. But present food laws give inadequate protection. Agene, or nitrogen trichloride, was used for 25 years for treating flour, and discontinued only last year after it was discovered it gives fits to dogs. There may be other potentially dangerous chemicals in our foods but there is no way of avoiding them under present laws.

Dr. White cautions that the "situation calls for genuine concern about the future, but not for alarm or hysteria about the present."

Two resolutions have been recently introduced before Congress to make a study of the situation.

Hearings have been set by the Federal Security Administrator for Jan. 17, 1950, on tolerances of chemical sprays on fresh fruits and vegetables. This is intended to be a pooling of information on insecticidal poisons and their near relatives which are used to spray crops to preserve them.

"Wishful guessing" has also marked the use of DDT in the past. At one time it was claimed that because there were no apparent ill effects in the use of DDT to delouse combat troops during the war it was harmless. Since then it has been proven that DDT has harmful effects in experiments with rats. Cows were shown to secrete DDT in their milk when sprayed with it to kill flies. This situation was corrected but less is known about other insecticides which may be a chronic threat to the nation's health.

Science News Letter, November 19, 1949

CHEMISTRY-AGRICULTURE

Corn's Ripeness Found By Chemical Reaction

➤ HEADLIGHTS on bicycles or automobiles of many years ago were lighted by the same chemical reaction through which the maturity of sweet corn can now be determined.

Acetylene headlamps on bikes and automobiles used the reaction of water on calcium carbide to produce a gas that would burn to give light.

The amount of moisture in ripened sweet corn is dependent upon its maturity. In the method disclosed by the Western Regional Research Laboratory of the Department of Agriculture, Albany, Calif., a sample of ripening corn is ground very fine and calcium carbide added. The amount of acetylene gas given off by the action of the moisture in the corn is measured, and from this the maturity determined for that variety of corn, locality and season.

Canners need to be able to check the maturity of corn to gather it at just the right stage to insure a desirable and uniform finished product. Previous testing methods have been costly or time consuming.

Science News Letter, November 19, 1949

AERONAUTICS

New Plane Has Parts Easily Accessible for Repair

➤ A LOW-DOWN engine in the nose and two high-up engines in the wings are striking features of a new Air Force assault transport now completed and undergoing tests in Hawthorne, Calif., by the manufacturer, the Northrop Aircraft, Inc. However, the important feature of this plane, a raider to be known as C-125, is the ease with which all parts can be reached for repair in advanced positions with a minimum of repair equipment.

The nose engine is accessible from a six-foot stepladder. Steps recessed into one side of the fuselage permit access to the top of the wing. A portion of the front wing edge under the wing engines can be opened to form a working platform for engine maintenance. Trunk-like fasteners, requiring no special tools, enable mechanics to get at the engines with ease. Wing leading edges can similarly be "unbuttoned" for inspection of control, hydraulic and electric systems.

This plane, with its high wings, has sturdy, fixed landing gear able to take the shock of high-weight landings on rough terrain. Wheels can be changed in an emergency without use of a jack. The craft can be used to transport heavy cargo or to accommodate 32 men with their equipment.

Science News Letter, November 19, 1949

ASSAULT TRANSPORT—The Northrop Raider C-125 has been designed to make all parts of the plane easily accessible for repairs.

MEDICINE

Aureomycin Is Promising In Syphilis Treatment

➤ AUREOMYCIN is showing some success in the treatment of early syphilis in trial tests reported by Drs. Jack Rodriquez, Frederick Plotke, and Seymour Weinstein of the Chicago Intensive Treatment Center and Dr. William W. Harris of the U. S. Public Health Service in Chicago.

About 39 hours on the average after the antibiotic is taken in pill form syphilis sores are rid of the spirochetes, the germs causing the disease, the physicians report in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION (Nov. 12).

Twenty-seven patients recived this treatment but the effect was studied in only 16. These showed that open syphilis sores healed completely in every case but it took longer to do the job than when using arsenical compounds or penicillin, the physicians found.

Also, each patient had to be given a multi-vitamin capsule daily during treatment because aureomycin kills the bacteria of the intestinal tract needed for the synthesis and absorption of essential nourishing substances.

Other undesirable effects from the antibiotic were fever and nausea which was often accompanied by vomiting. The physicians pointed out that because of the high dosage of the antibiotic necessary for treatment there was a mild or moderate degree of stomach upset in almost all of the patients. They countered some of this type of reaction by giving aluminum hydroxide gel before each dose of aureomycin.

The antibiotic is given every four hours for about two weeks. It has definite antisyphilitic effect but they caution that it is too early to say more.

Science News Letter, November 19, 1949

CHEMISTRY

Better Fruit Flavors Ahead with Repeal of Tax

➤ THE public will now get a chance to taste government-developed fresh fruit flavors, with the removal of prohibitive taxing under alcohol laws that kept them out of quantity production.

The apple and grape flavors are produced by a process of rapid vaporization of the fresh fruit juices in special equipment developed for the purpose at the Department of Agriculture's Eastern Regional Research Laboratory in Philadelphia.

Portable equipment which can extract essence right in the orchard has also been developed. The volatile vapors are then condensed into a natural-flavor fruit essence which can be used in candy and food flavoring.

The method is an improvement over previous steam distillation processes because it captures the highly volatile elements which make up the natural flavor of the fruit. These elements are mainly forms of alcohol. Until last September an alcohol tax of $9 per gallon was levied on the fruit essence.

It was this tax which discouraged the wide commercial use of the new method, even though it has been available since 1944 when the process was first announced.

Interested companies pointed out that the essence is very sirupy and sweet and quite unsuitable for beverage use. As a result Congress directed revision of the Internal Revenue Code exempting fruit concentrates from the tax. However, if the concentrate is to be transported, it must be denatured with acetic acid. When the concentrate is made and used in the same plant, denaturing is unnecessary.

The Department of Agriculture believes that between 16 and 30 companies are set up to make fruit essence by the new method.

Science News Letter, November 19, 1949

AGRICULTURE

World Milk Production Now 90% of Prewar Peak

➤ DESPITE a slight sag in American production, world milk production in 1948 rose to about 90% of the prewar output, the U. N. Food and Agriculture Organization in Washington reports.

The United States, the world's largest milk-producing country, fell behind her 1947 total by 3%. The number of cows was lower than at any time since 1930, but yield per cow was higher.

Although worldwide data are scarce for some important regions, the FAO finds that increases in Europe, resulting from the improved feed situation, seem to have been matched by rises in South America and Africa. In India, where much of the milk comes from buffaloes, figures are very scanty, but from estimates the FAO ranks India as the third largest producing area, after the United States and Europe.

Further details appear in a recently published FAO commodity study.

Science News Letter, November 19, 1949

CHEMISTRY

All-Synthetic Fiber Will Compete with Other Yarns

➤ COMPETING next year with such familiar fibers as silk, wool, cotton and nylon, for shirts, curtains, men's suits and blankets will be an all-synthetic fiber, dynel, announced by Carbide and Carbon Chemicals Corporation, New York.

A short staple form of the 12-year-old synthetic fiber vinyon, it can be easily handled on spinning and weaving mills now using the conventional fibers. It is claimed that fabrics made of this acrylonitrile-vinyl chloride fiber will not burn, are not attacked by moths, will dry quickly and stand up well under exposure tests.

Science News Letter, November 19, 1949

IN SCIEN

ENGINEERING

New Non-Brittle Cast Iron Can Be Bent or Twisted

➤ NOW protected by patents just issued, details of a new cast iron that can be bent or twisted were presented to the Gray Iron Founders' Society in Chicago by Don Reese, International Nickel, Bayonne, N. J. Because it is not brittle like ordinary cast iron, the new product will have many applications.

This new ductile cast iron combines processing advantages of cast iron, such as fluidity, castability and machinability, with many of the product advantages of steel, he stated. The essential feature of the invention is the introduction into and retention by the molten iron under treatment of a small but effective amount of magnesium.

The presence of the magnesium produces a new graphite structure which is in the form of spheroids or compacted particles. Due to the elimination of a substantial amount of the usual weakening flake graphite, the new product possesses high tensile strength, elasticity, toughness and ductility.

Science News Letter, November 19, 1949

ENGINEERING

New Electronic Torch Can Melt Tungsten

➤ HEAT hot enough to melt tungsten, which melts at 3,370 degrees Centigrade and has the highest melting point of all the metals, is obtained with a new "electronic torch" revealed by the General Electric Research Laboratory. It utilizes extremely high-frequency radio waves with such gases as nitrogen or carbon dioxide fed past the discharge arc.

As described by Dr. J. D. Cobine, G-E scientist, the heart of the torch is a tube known as a magnetron which produces radio waves of 1,000,000,000 cycles per second. Leading from the tube is an antenna made of two short metal cylinders, one within the other. A high-frequency arc can be made to form on the end of the antenna. If certain gases are fed past the arc, the electronic torch results. It resembles a jet of flame about nine inches long.

The high temperatures produced on any surface placed in the jet are caused almost entirely by the heat generated by atoms joining together to form molecules, according to Dr. Cobine. The molecules of certain gases are broken up into atoms by the high-frequency arc. These atoms join together again on surfaces placed in the torch. The jet itself is not necessarily hot.

Science News Letter, November 19, 1949

NCE FIELDS

NUCLEAR PHYSICS-METEOROLOGY

Atomic Energy Plants Will Send Poisons into Air

➤ THE development of atomic energy for peacetime industrial uses will make "stack meteorology" an important science of the future.

Norman R. Beers, editor of NUCLEONICS MAGAZINE, at the National Air Symposium, Pasadena, Calif., predicted that large atomic energy plants will put in the air materials that are either unusually toxic for chemical reasons or measurably radioactive.

Mr. Beers defined "stack meteorology" as "the entire problem of air pollution from stacks of chimneys as the meteorologist sees it."

The fogging of photographic plates occurred a thousand miles from the first atomic bomb explosion in New Mexico, Mr. Beers recalled. Dust from the great Krakatoa volcano has traveled around the world. Industrial smoke and fumes are likewise carried greater distances than is generally realized.

"Aviators have seen smoke from large cities adequate to dirty their windshields and to decrease visibility up to 300 miles away from the smoke source," he said.

Science News Letter, November 19, 1949

NUCLEAR PHYSICS

Beryllium Keeps Form Up to 1,800 Degrees

➤ BERYLLIUM, the light metallic element that can be used as a moderator and reflector of neutrons in an atomic energy pile, does not change even when subjected to temperatures as high as 1,800 degrees Fahrenheit.

Contrary to several reports published in scientific journals, Paul Gordon of the Illinois Institute of Technology, Chicago, reported that the same form of beryllium that exists at room temperature is found at much higher temperatures.

Using a specially designed high temperature precision X-ray camera, Mr. Gordon examined very thin disks of beryllium to obtain the results he reports in the JOURNAL of APPLIED PHYSICS (Oct.).

Science News Letter, November 19, 1949

ENGINEERING

Extra Light Auto Oil Best For Sub-Zero Climates

➤ AN extra light crankcase oil for the automobile, designated as 5-W by the oilmen, is satisfactory to use in areas of sub-zero winter weather, the Society of Automotive Engineers was told in St. Louis, by V. G. Raviolo, Ford Motor Company, Dearborn, Mich. He presented a committee report giving the results of a special study.

This oil, he said, is regarded as a substantial improvement over the winter lubricant now made by diluting 10-W oil with kerosene. Starting with it is about one-third easier, and there is little or no observable increase in wear except under extreme heavy-duty operating conditions. There is a gain in oil consumption of approximately 30%, but compensating benefits are found in the ease of starting and in the stability of the oil.

The conclusions reached by the committee are based on extensive tests in which 26 trucks and 197 passenger cars were used. Eleven automobile and 23 oil companies participated. The report points out that the ability of 5-W oil to maintain its viscosity and stability under operating conditions contributes to its superiority over lubricants made by diluting heavy oil.

Science News Letter, November 19, 1949

MEDICINE

Smallpox-Like Skin Ill Checked by Aureomycin

➤ AUREOMYCIN is showing promise in saving the lives of children with a virus-caused skin disease, and may turn out to be a remedy for smallpox, Dr. Frederick G. Perry of the Duemling Clinic and Dr. P. C. Martineau of the Lutheran Hospital, Fort Wayne, Ind., reported.

They cited the case of a two-year old boy who had eczema since the age of three weeks. After playing with a little girl who had been vaccinated for smallpox he became acutely ill, his temperature rising to 104.8 degrees Fahrenheit. His eyes were swollen shut and blisters formed over his entire body. Examination revealed the smallpox virus was responsible, the physicians declared in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION (Nov. 5).

The disease is called eczema vaccinatum and usually affects infants and children under five years of age. About a third of those who get the disease die from it.

Boric acid compresses applied locally and penicillin injections failed to help the little boy. So aureomycin was tried the second day he was in the hospital with improvement showing within 24 hours. The blisters began disappearing, others dried up, and his temperature returned to normal. He was apparently well on the 11th hospital day and was discharged. The physicians said that at this time most of the crusts had vanished and there was little scarring.

Although they don't know whether aureomycin checked the secondary infection or had an antibiotic effect on the virus causing the disease, they feel the drug may be of special value in treating cases of eczema vaccinatum and possibly smallpox.

Science News Letter, November 19, 1949

MEDICINE

Army Hospital Staffed With Women for War Study

➤ A REHEARSAL for war is taking place at the Murphy General Hospital in Waltham, Mass., where the Army is replacing male personnel with female non-professional help.

The experiment which began in June is expected to run for 18 months. Maj. Gen. George E. Armstrong, deputy surgeon general of the U. S. Army, told the Association of Military Surgeons meeting in Washington.

Murphy is the only hospital participating in the experiment and at its conclusion will return to normal. But at present all female Army personnel who are qualified are replacing medical technicians, administrative officers, cooking specialists and other personnel. WACs are replacing hospital corpsmen.

There is also legislation before Congress for a study to enable female doctors and dentists to be commissioned which has not yet been approved.

The study is to provide a measuring stick which will show whether female personnel can take over as many duties as possible in hospitals located in the interior. It will not be applied during peace time.

Science News Letter, November 19, 1949

INVENTION

"Aging" of Liquor in Bottle Now Possible

➤ A BUNDLE of sticks inside the whiskey bottle continues the "aging" of liquor, it is claimed in a patent just issued. One advantage is that the whiskey will not have to be kept in kegs for aging for so long a period. It can be bottled and shipped to dealers on whose shelves it will acquire additional smoothness and better taste.

The patent, 2,487,594, was issued to Harold A. Rudnick of Boston. The process can be used with other alcoholic liquors as well as whiskey. It can be used with liquors stored in a jug, or in any container the walls of which are chemically inert to the alcoholic beverages.

The sticks may be of any shape, but elongated rods are preferred. For whiskey, oak sticks are recommended, which may or may not be charred. The bundle, after insertion in the bottle, is allowed to spread so that the surfaces are in better contact with the liquid. The sticks should be plentiful enough to have sufficient surface area to permit aging to continue at a reasonably rapid rate.

Most aging of liquor is done in oak or other wood containers. Part of the contents is absorbed by the wood, evaporates and is lost. Such loss is prevented when the aging is done in the bottle. This is another advantage claimed in the patent.

Science News Letter, November 19, 1949

AGRICULTURE

Science Preparing the Feast

Thanksgiving menus this year will profit from the work of plant and poultry scientists who have given us small turkeys and improved sweet potatoes.

By MORTON STARK

➤ YOUR ideal Thanksgiving feast is being prepared now, not by chefs but by scientists at plant and poultry experiment stations.

Some of the scientists' handiwork, like the Beltsville Small White turkey and well-fleshed sweet potatoes, are already available. Others, like bigger cranberries and home-grown chestnuts, are still on the way.

The small turkey, product of years of breeding experiments, was tailored to the needs—and kitchenettes—of the small-size family of today. The market bird averages around 11½ pounds, has a compact body carrying a high percentage of edible meat.

Compact Turkey

The desired compactness, intended for small ovens as well as small families, comes from the fact that the Beltsville turkey does not have the gap that turkeys usually have between the rear of the breast bone and the legs.

The sweet potato that you will find when you go marketing is another product of the plant breeders' skill. Although the varieties on sale don't show the striking modifications of the diminutive turkey, they are improved types.

Improved Sweet Potato

One of the more common, called Orlis (a contraction of orange-little-stem), has been bred as a successor to older less satisfactory sweet potatoes. It is high in carotene content, a vitamin A element. This and other kinds which have been developed by the plant breeder assure the housewife that the potatoes she buys will not be stringy and that the flesh will be firm, moist and of an appetizing color.

Your succulent turkey with its attendant yams will no doubt be garnished in the traditional manner with cranberry sauce and chestnut stuffing. If these fall short of the plant breeders' highest expectation for them, it will not be for lack of trying.

It is a long uphill road from the drawing board to the festive board. Take chestnuts, for example.

Back around 1915 Department of Agriculture scientists started to introduce foreign chestnut trees into this country. Their object at the time was not better nuts, but better trees for timber. Our own trees produced an abundance of excellent chestnuts, which duly found their way on Thanksgiving Day into the very center of the center of interest. Into the turkey, that is.

Unfortunately, the introduced chestnut trees, mostly from the Orient, brought with them the chestnut blight. American trees were fatally susceptible to the blight, and have been all but wiped out. The market chestnut is an import from Italy or Spain.

New Chestnut Types

In the intervening 40 years since the Oriental trees were first brought in, government scientists have been at work trying to develop a new chestnut to replace the native type. Only a few weeks ago, they announced that they have succeeded. Now that the three new types, with large, sweet nuts, are going out to tree nurseries, it can be predicted that within a span of years American-grown chestnuts may once more be available for their traditional task of stuffing the traditional bird.

Cranberries are another matter. Good domestic cranberries are to be had, and no apologies need be made for them. They too, like the sweet potatoes, have benefited by years of selective breeding for the most desirable characteristics. But the extra big berry with which Agriculture Department small-fruit breeders have been hoping to tickle the American palate this year is not yet ready.

It looked for a while as though it might be available in time. The type berry has already been developed, but all the experimental work that goes into the launching of a new variety has not yet been completed. After certain trials and crosses now under way have been tallied, it is hoped that this large-size, high-gloss, high-yield berry may be ready to announce in the spring.

There are many things that Americans have to be thankful for this Thanksgiving. It might not be amiss, after the more reverential solemnities, to make a small secular bow in the direction of the scientists who are constantly at work improving the menu's classic ingredients.

Science News Letter, November 19, 1949

NEW CHESTNUT VARIETY—America's bid to replace her vanished native chestnut, new blight-resistant strains, will not be available in quantity to stuff many birds this year.

GEOLOGY

Crossing Nile by Dry Land Bridge Impossible Now

➤ NOT Biblical like crossing the Red Sea, but it is a fact that crossing the Nile on dry "land" was possible up until a few years ago. But the bridge, which was a mass of floating vegetation, was washed away in the floods of 1946.

About a year ago there were reports that

SMALLER TURKEY—S. J. Marsden, in charge of the Department of Agriculture research that developed the Beltsville Small White Turkey, holds one of the compact 11½ pounders.

another bridge was beginning to form, with grass, trees and other vegetation being brought down the river and held by a large rock in mid-stream which acted as a foundation. But the very heavy floods of last October washed it away. This year there was a search along the banks of the Nile, from Nimule to Juba, without finding a sign of a dry crossing.

Elephants were able to cross the bridges that were successively in existence for eight and 10 years. They were located where the river is 80 yards across and the bridges were about 250 yards wide.

Science News Letter, November 19, 1949

CHEMISTRY

Fluorine Plastic for Industrial Use Developed

➤ A FLUORINE plastic in a form that will stick to many metals, to glass and to porcelain for industrial use was announced. Fluorine is a very reactive chemical that has only recently been tamed.

Known for its oustanding resistance to heat and chemical attack, the plastic, tetrafluoroethylene, has previously been difficult to fabricate because of these very properties.

Chemists at Du Pont Company, Wilmington, Del., have increased the possible uses of the compound, trade-marked Teflon, by reducing the size of the plastic bits until they are so small that they remain suspended in a carrying liquid, somewhat the way butter fat is suspended in fresh milk.

Science News Letter, November 19, 1949

VETERINARY MEDICINE

New Foot-Mouth Virus

This new type of virus, foreign to Mexico where it was found, is disturbing since its source is unknown and present vaccine is not effective against it.

➤ THE unexplained appearance in Mexico of a foot-and-mouth disease virus of a type hitherto unknown there is a matter of grave concern, but U. S. government officials do not think it will turn into a runaway plague like the original outbreak in December 1946.

The single known site of the new virus Type "O", a ranch near Mexico City, has already been cleaned out. And all the experience and equipment gathered in three years of fighting the disease is in readiness, should it reappear.

This high state of preparedness permits a certain amount of optimism, but members of the Joint Mexican-United States Commission for the Eradication of Foot-and-Mouth Disease are deeply concerned over the outbreak. So are Department of Agriculture officials in Washington, one of whom labelled it "extremely serious".

They are concerned because of mystification over the source of the new virus. The original infection was caused by virus Type "A". The vaccine now in use is only effective against Type "A". The new virus is Type "O", known in Europe and South America but hitherto undetected in Mexico.

There are two possible sources of Type "O". It might have been brought in from outside the country. The authorities have been vigilant in their efforts to guard against importation, but it still might have slipped in despite these precautions.

The other source is by natural mutation of a Type "O" strain of virus from the original Type "A". This theory has never been proven, and scientists are not certain the new type could arise in this way.

Science News Letter, November 19, 1949

BIOLOGY-BOTANY

Test Tube Tomatoes Grown

➤ RED tomatoes, as tasty as vine-ripened ones, have been grown on synthetic food from a flower detached from the plant.

This is the first time that fleshy fruits have been grown by a test tube process though such growth of isolated roots, stems and seed embryos has become classical.

The test tube tomatoes were grown by Dr. J. P. Nitsch of the Kerckhoff Laboratories of Biology at California Institute of Technology, Pasadena, Calif.

The tomatoes "tasted like usual tomatoes," he reports in the journal, SCIENCE (Nov. 11). They were seedless and small. Each was about one inch in diameter. But each flower had only about an ounce of food supply at its disposal. The lack of seeds, Dr. Nitsch says, may have been due to the lack of pollination, because the plants were raised in a greenhouse where pollination was very poor, or to killing of the pollen tubes by the sterilizing chemicals.

The tomato flowers that yielded the test tube tomatoes were of the San Jose variety. They were cut from the plant, sterilized with calcium hypochlorite, and planted in glass flasks containing various chemicals. No growth occurred in a medium containing only mineral salts, sugar, vitamin B one and the amino acid, cysteine. The addition of sterile juice from either green or red tomatoes caused the ovaries to develop.

A week after planting in the glass flasks, the ovaries became visible, pushing up the petals and stamens which had kept them hidden. They then enlarged regularly until about the 25th day after full bloom, when growth slowed down.

About the 35th day, fruits turned red and ripened at the same time as tomatoes left on the plant.

Science News Letter, November 19, 1949

AERONAUTICS

Droppable Fuel Tanks Give B-50 Bombers Longer Range

➤ DROPPABLE external fuel tanks, one under each wing, give a new version of the Boeing B-50 Superfortress a longer range, it was revealed in Seattle, Wash., by Boeing officials. The two tank fittings when not wanted to carry fuel can be used to carry a 4,000-pound bomb.

The best known of the B-50s is "Lucky Lady II" which circled the earth relatively recently in a non-stop flight, being refueled in the air several times on the trip. The new bomber, known as B-50D, is now being delivered to the U. S. Air Force.

Other improvements in addition to the detachable fuel tanks are included in the advanced version. They are new radar equipment, a new molded plexiglass nose section, a modified four-gun turret, and a new refueling system by which the plane is fed with fuel from a single intake.

Science News Letter, November 19, 1949

MEDICINE

Radar Enters Cancer Fight

➤ LIVES, money and many worry-ridden days may be saved by application of an Army-invented radar development to cancer fighting, announced by the National Cancer Institute.

The development consists of the instantaneous processing of radar photographs. It is now going to be used for processing photofluorographic films used to detect stomach cancer in its early, potentially curable stage. The U. S. Public Health Service, on recommendation of the National Cancer Advisory Council, is granting $49,626 to Dr. Russell H. Morgan, professor of radiology at Johns Hopkins University, Baltimore, for this work toward the control of cancer.

Cntrolling stomach cancer has been one of the toughest jobs cancer fighters have had. This form of cancer kills 60% of its 100,000 victims each year. The start of the disease is so insidious that there is no warning signal to attract either the patient's or his doctor's attention before the malignant growth has advanced beyond the curable stage.

In the hope of making mass X-ray detection studies possible for stomach cancer, Dr. Morgan has developed and tested a special camera, the Schmidt fluorographic camera. The unique optical system of this camera enables it to take sharp pictures of the relatively dim image appearing on a fluoroscopic screen. Its efficiency is said to be 10 times that of any photofluorographic unit previously available. The photofluorographs define the internal organs clearly enough to show tumors or other abnormalities without exposing the patient or X-ray operator to a dangerous amount of radiation.

By using the Army's method for rapid processing of radar photographs in combat operations, the photofluorographs for cancer detection can be made without need for darkroom equipment and film storage files. This will cut costs.

In addition, a report of any signs of disease can be had immediately, so that any necessary further check-up or examination can be made while the patient is still at the clinic. This may save lives by cutting down the period between detection of the cancer, if there is one, and operation for its removal. And it will save the person examined from days or weeks of worry while waiting to hear the results of the examination.

Science News Letter, November 19, 1949

MEDICINE

Pre-Birth Brain Activity

➤ IF MAN'S development follows the pattern of lower animals, he begins to think, or his brain is at least ready to start thinking, three months before birth.

That this might be true is indicated in researches reported by Dr. Louis B. Flexner at the meeting of the American Philosophical Society in Philadelphia. Dr. Flexner is on the staff of the Carnegie Institution of Washington's embryology department in Baltimore.

Dr. Flexner studied the nerve cells of the gray matter of the brains of guinea pigs at various stages in their pre-birth development. About two-thirds of the way through the pre-birth period, a series of "abrupt changes" occurred in the nerve cells.

Nerve processes started to grow rapidly. The volume of the nucleus of each cell stopped increasing. An enzyme believed to have a useful energy-yielding activity increased sharply to the adult level of activity. Other enzymes, responsible in part for the combustion of foodstuffs, increased rapidly to the adult level.

At the same period the nerve cells for the first time are electrically active. Electrical potential changes, known to the layman as brain waves, can be recorded from the surface of the brain at this same two-thirds stage of the guinea pig's pre-birth development.

The nerve cells of the guinea pig's cerebral cortex, or brain gray matter, "begin to show functional activity about two-thirds of the way through gestation," Dr. Flexner concludes.

Whether this means that man's brain is ready to start thinking three months before birth cannot be stated definitely for two reasons, he explained. One is that we "don't known what cells we think with." The other is that guinea pigs are born more nearly grown-up than human babies. But man's pre-birth development probably goes through the same cycle as the guinea pig's, so the studies give an indication of when the change that readies the brain for thinking takes place.

Science News Letter, November 19, 1949

The chasm between the intelligent layman and the marvelously growing science of Mathematics is being bridged by the Mathematics Magazine. About 40% of the magazine is devoted to easy reading, 25% to papers requiring some college Mathematics and 30% to advanced topics (mostly expository). For example, a series of "Understandable Chapters on Various Courses in Mathematics," beginning with first algebra, is now running. Vol. 23 No. 1, Sept.-Oct. contains such a chapter on Elementary Number Theory by Prof. E. T. Bell of the Calif. Institute of Technology.

The Mathematics Magazine is published bymonthly except July-Aug. Subscription price is $3.00, single copies 65c.

Address: THE MATHEMATICS MAGAZINE, Department C, 14068 VAN NUYS BLVD., PACOIMA, CALIFORNIA.

ACOUSTICS

Very High Sound Waves Kill a Rat but Not a Man

➤ RATS and guinea pigs can be killed with high frequency sound waves, but man is safe against them because he has no fur, the National Safety Congress was told in Chicago by Dr. Horace O. Parrack of the U. S. Air Force Medical Laboratory.

With the fur-bearing animals the sound energy is turned into heat. They die from high-frequency noise because they get so hot the body proteins coagulate. When the hair is shaved off, sound does not bother the animals much more than it does man. Man, with his much more efficient skin ventilating system, is safe at energy levels 120 times greater than the animals ordinarily are, he said.

Studies being made by Dr. Parrack are concerned with the effect on airmen of jet propulsion and other modern aircraft engines. His investigations do not show that the sound field generated by current aircraft power plants is not hazardous. Jet engine noise fields constitute a serious hazard to hearing organs in that temporary deafness will follow even brief exposures and repeated exposure may result in permanent deafness.

Science News Letter, November 19, 1949

ASTRONOMY

Plan for Re-Equipment Of India's Observatories

➤ TWO Indian astronomical observatories will have the most modern equipment when plans discussed by Pandit Jawaharlal Nehru during his visit to Harvard College Observatory, Cambridge, Mass., come to fruition.

The Indian Prime Minister and his sister, Ambassador to the United States, spent part of their Boston visit conferring with President James B. Conant of Harvard and Dr. Harlow Shapley, Harvard astronomer, about a new Schmidt-type telescope for the Allahabad University observatory in north India and a sun-observing coronagraph for famous Mt. Kodaikanal solar observatory in southern India.

This re-equipping of the Indian observatories will give that country the best telescope in Asia and a solar instrument equal to those in America and France. Dr. A. C. Banerji of Allahabad is being sent to America by the Prime Minister to get the project underway and later Dr. A. K. Das will come to work out the solar project. The beginning of the cooperation was Dr. Shapley's visit to India last year.

Science News Letter, November 19, 1949

MEDICINE

Insert Plastic Thigh Bone

Diseased natural bone in the thigh of a boy was replaced by a polyethylene plastic to which the tendons and muscles were attached.

➤ A SUBSTITUTE thigh bone, carved from a block of polyethylene plastic, has been successfully substituted in the leg of a 12-year-old boy for the natural bone which had to be removed because of disease.

The "formidable" two-hour-long operation in which the boy's own bone was "filleted" out of his leg and the plastic substitute attached to muscles, was performed by Dr. H. J. Seddon, of the Royal National Orthopedic Hospital in London, assisted by John T. Scales, of the Institute of Orthopedics, also of this city.

The boy had for a long time suffered from the abnormal bone condition called chondromatous dyplasia. The inner, longer leg bone below the knee as well as the thigh bone was affected. The surgeons had agreed that amputation through the hip joint was the only satisfactory treatment.

"But an artificial limb for such an amputation is at best a poor affair," they state in their technical report in the LANCET (Oct. 29), "and we welcomed the suggestion made by Mr. K. I. Nissen that an attempt should be made to amputate the limb through the middle third of the thigh, fillet out the femur (thigh bone), and substitute for it a plastic model of its upper half or two-thirds."

The polyethylene plastic was chosen because of its stability and high resistance to chemical change, its considerable toughness and resistance to fatigue strain and its non-wettable surface which living tissue does not stick to. Its safety for use in the body had already been learned through animal experiments.

Precise measurements of the normal thigh bone were first made with very carefully taken X-ray pictures. The plastic substitute was carved to these measurements. When finished it weighed seven and one-half ounces and was eight inches long. Channels were made in it so that tendons from hip and other muscles could be slipped through, to attach the substitute thigh bone to muscles. This gave some chance of its being well controlled by the more important muscle-groups. A good fit of the head of the thigh bone to the hip was obtained by filing its surface after a preliminary fitting during the operation.

The boy's own thigh bone was dissected out by peeling off the muscles by diathermy cutting, or an electric knife as it is sometimes called. The muscles not attached to the plastic substitute bone were stitched together.

Two pints of blood were given during the operation and another pint after it. Penicillin and later streptomycin were given to control infection which was feared because of the "enormous" area of tissue exposed during the operation.

Less than two months after the operation, the stump had become normal, the boy had ben fitted for an artificial leg and was walking on a temporary "pylon."

Science News Letter, November 19, 1949

MEDICINE

Hormone Aids Mental Ill

➤ THE 50-year-old woman was despondent and wanted to kill herself. She thought people were plotting against her, casting "spells" over her, poisoning her food, filling her room with poisonous fumes. She felt nervous and very weak.

At the hospital they gave her a dose every six hours of ACTH, hormone chemical which has gained fame for relief of rheumatoid arthritis sufferers. After four days the doctors stopped the ACTH because there was no more available. But the woman was strikingly improved. She smiled and said she felt better. Her delusions of people plotting against her still persisted.

A week after she left the hospital these delusions abruptly stopped. She went back to work as a domestic servant for her former employer who said "she is like her old self again."

Whether the ACTH brought her out of the depression and mentally sick state or whether her recovery just happened at the same time is not known. So far, two months after treatment, she has not had any further symptoms of her sickness.

Her case is reported by Drs. Tom D. Spies, Robert E. Stone, Samuel Dreizen and Benjamin F. Morton of Northwestern University Medical School, Chicago, and the Nutrition Clinic of Hillman Hospital, Birmingham, Ala., in the SOUTHERN MEDICAL JOURNAL (Nov.).

Her case is not reported as a cure. She was chosen along with four other patients for short-term treatment with the scarce ACTH in studies planned to see what the hormone chemical might do in disorders of the aging process.

One of the patients was a 60-year-old man with cancer of the lip. Sensitiveness was promptly relieved by ACTH and the cancer decreased by 90% in size, but microscopic examination of a tiny bit of the tumor tissue showed that cancer cells were still present.

Another was a woman with severe skin trouble, sore mouth, loose teeth associated with glandular disturbance. ACTH helped her, too, but her symptoms gradually returned after the treatment was stopped. This was also true of the other two patients who had rheumatoid arthritis.

The five patients had such different conditions, affecting such different cells of the body, that the results suggest ACTH "works through a fundamental biochemical system of the body to affect the metabolism of all the cells," the scientists conclude.

ACTH is a hormone from the pituitary gland which acts to stimulate the adrenal gland, producer of cortisone, which has brought relief to rheumatoid arthritis patients. Both chemicals are so scarce that only tiny amounts are available for medical research.

Science News Letter, November 19, 1949

Words in Science—
KALEIDOSCOPE-STEREOSCOPE

➤ TWO instruments which used to be very popular for amusement in our grandparents' parlors were the kaleidoscope and the stereoscope. Both are viewing instruments.

The kaleidoscope—you say it ku-lye-doe-skope with the stress on lye—makes use of mirrors to make tiny bits of colored glass appear as beautiful symmetrical designs which are forever changing as you turn the instrument.

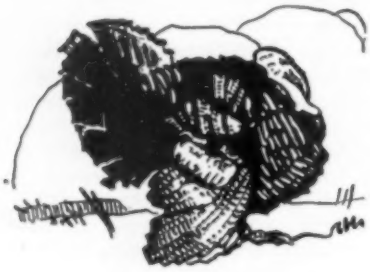
The stereoscope—pronounced ster-ri-oh-skope with the accent on ster—is an optical instrument which blends two views of the same scene, taken from slightly different positions, so that they appear as one three-dimentional view. With the stereoscope Grandmother used to enjoy life-like views of Niagara Falls.

Science News Letter, November 19, 1949

FUN IN THE DARK
250 LUMINOUS STARS
Moon & 4 Planets
Have your own Planetarium on the ceiling of your den, bedroom or rumpus room!
"STARS" shine with outdoor realism AFTER turning off the lights.
Gummed and Ready to Put Up
NOW Only $1.00 postpaid
Complete with Chart and Directions
"STARS" • 12,200 BLIX STREET
NORTH HOLLYWOOD, CALIF

AGRICULTURE

NATURE RAMBLINGS



Bird of Opulence

➤ THERE is a movement among turkey raisers to develop a small bird more commensurate with the capacities of today's small families. The idea is to reduce the bird to the proportions of a more workaday menu, to remove roast turkey from the category of exclusively feast-day fare.

One bows to inevitable progress, but not without a sense of loss. The whole spirit of the traditional Thanksgiving turkey lies in its amplitude, its largesse. Turkey is more than an outsize chicken. When our forefathers cast about for the piece de resistance of the first Thanksgiving, there were no rival candidates.

Turkey was elected unanimously not alone because he was so abundant but also because his fleshly endowments perfectly suited him for the role. Not only was he palatable, he was big. A gentleman named William Wood, writing in Massachusetts about 1630, observed that "These Turkies remaine all the yeare long, the price of a good Turkie cock is foure shillings; and he is well worth it, for he may be in weight forty pound."

The turkey was unknown in the Old World. It was found by the explorers and colonists all the way from Central America to southern Maine. Flocks of the birds roved the forests in great numbers, being especially numerous in New England.

The feeding habits of the wild turkey were extremely adaptable, and this in large measure was his undoing. Hunters would lie in wait around cornfields and when the birds settled to feed would slaughter them in quantity. A common expedient was to lay out long lines of corn along the length of a ditch and then pour a fusillade into the flock of sitting birds.

By such indiscriminate killing, the wild turkey was wiped out in all but a few localities, notably the less inhabited areas of the Gulf States. The last recorded shooting of a wild turkey in Massachusetts was a year or two before the Civil War. This took place on a mountain fittingly called Mt. Tom. Today's table turkey is a domesticated bird, raised on a turkey farm.

The white man was by no means the first to appreciate the prime gustatory qualities of Tom Turkey. The Indians of Mexico had already brought the bird under domestication when the Spaniards came. Cortez found them in the markets of Mexico. And it is through him, by a devious route, that the turkey gets its misleading name.

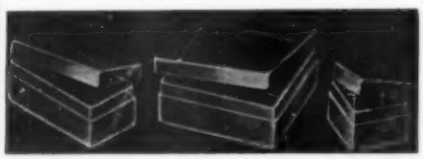
The Spaniards brought turkeys back to Europe with them. From Spain they were carried to the Near East, whence they were introduced into northern Europe. Like several other native American products, among them tobacco and corn, turkey was thought to have originated in Turkey, or even farther east, in India.

Benjamin Franklin wished to make turkey the American symbol, rather than the bald eagle. Both Franklin and the ornithologist Audubon pointed out that the eagle, a pirate and a thief, was not an especially flattering or fitting emblem. They both maintained that the turkey, which at least does not poach on his neighbors' preserves, was more appropriate.

The highest tribute we pay the turkey is to eat him with gusto. And this observance has a fitness all its own. It is certainly an honor we would never pay an eagle.

Science News Letter, November 19, 1949

Transparent Boxes



Offer maximum protection with complete visibility for specimens of all kinds, small parts, etc. Innumerable uses for these convenient boxes.

Model			
A	(15/16"x15/16"x¾")	20 for $1: 100 for	$4.00
B	(1⅞"x15/16"x¾")	15 for 1: 100 for	5.00
C	(1⅞"x 1⅞"x¾")	12 for 1: 100 for	6.00

(Postpaid if remittance accompanies order)

Send a trial order today

R. P. Cargille

118 Liberty St. New York 6, N. Y.

MEDICINE

Artery Hardening Aids

➤ TWO chemical weapons against arteriosclerosis, popularly known as hardening of the arteries, were announced at the meeting of the American Society for the Study of Arteriosclerosis in Chicago.

One of them is choline, already famous for its value in preventing fat deposits in the liver. This chemical has been cutting the death rate and saving lives in a serious form of heart disease, Dr. Lester M. Morrison and William F. Gonzalez of Los Angeles reported.

They gave it daily to 115 patients who had recovered from an acute attack of coronary thrombosis and myocardial infarction. This is the disease in which a blood clot forms in one of the arteries supplying the heart muscle with blood. Because the clot obstructs the artery, the part of the heart it should nourish dies.

Some of the patients, 52, got the choline for one year, another group of 35 got choline daily for two years and a third group of 28 were given it for three years.

Comparing these patients with another 115 who had the same kind of heart disease but did not get choline treatment showed that "the subsequent mortality rate of patients was significantly reduced under the choline treatment," the Los Angeles doctors reported.

They believe the chemical has value in the treatment of hardening of the heart's arteries and should be given further trial.

The second chemical weapon against hardening of the arteries is one of the B vitamins, inositol. Its value as "a potential weapon" against one of the factors believed responsible for the most common variety of hardening of the arteries was reported by Drs. Irving Leinwand and Dan H. Moore of New York.

In this form of arteriosclerosis, fatty cysts form in the connective tissue of the artery walls and the tissue undergoes fatty degeneration. Faulty handling of fat by the body is believed to play some part in the development of the condition.

Drs. Leinwand and Moore gave inositol three times a day to patients suffering from some disorder of fat utilization. No special diet was ordered. The results as shown by studies of the blood serum led the doctors to believe the chemical would be useful in the special form of arteriosclerosis.

Headache and gastrointestinal upsets of diarrhea occurred as side reactions to inositol in a small percentage of cases.

Further evidence for the reasonableness of treating this kind of arteriosclerosis with diet, exercise and in some cases with pancreatic extract was reported by a group of researchers, headed by Dr. Joseph B. Wolffe, from the Wolffe Clinic and Temple University, Philadelphia.

They got their evidence from studies of geese and ducks. Wild ducks, they found, rarely developed the artery condition compared to its occurrence in domesticated ducks and geese. When the condition was brought on in the geese by forced feeding, it could be reversed and cleared up by diet, exercise and pancreatic extract.

Science News Letter, November 19, 1949

• Books of the Week •

TO SERVE YOU: To get books, send us a check or money order to cover retail price. Address Book Dept., SCIENCE NEWS LETTER, 1719 N St., N. W. Washington 6, D. C. Ask for free publications direct from issuing organizations.

ANTIBIOTICS—Robertson Pratt and Jean Dufrenoy—*Lippincott*, 255 p., illus., $5.00 Gathering together material previously widely scattered in scientific literature, some derived from the authors' researches.

CANCER: New Light on Its Causes, Detection, Treatment, Cures and the Brilliant Promise of Today's Research.—Beka Doherty—*Random House*, 327 p., $3.00. Intended to inform the public about a major current problem and calm exaggerated fears.

DATELINE: WASHINGTON: The Story of National Affairs Journalism—Cabell Phillips, Ed.—*Doubleday*, 431 p., illus., $4.00. A compilation by leading Washington correspondents in Washington, D. C. Traces the development from shortly after the turn of the 20th century to the beginnings of the Truman Fair Deal.

ELECTRONICS: EXPERIMENTAL TECHNIQUES—W. C. Elmore, and Matthew L. Sands—*McGraw-Hill*, 417 p., illus., $3.75. This is volume 1 of division 5 of the National Nuclear Energy Series. Describes useful and successful circuits for making nuclear and other physical measurements.

HOW TO MAKE A HOME BUSINESS PAY—Julietta K. Arthur—*Prentice Hall*, 330 p., $2.95. Practical suggestions for those women who desire to earn money at home.

AN INTRODUCTION TO THE MECHANICS OF VISCOUS FLOW—H. F. P. Purday—Dover, 185 p., illus., $2.50. An introduction to three closely related parts of physics—the mechanics of non-turbulent flow, the flow of heat by conduction, and heat transfer between solids and fluids in states of non-turbulent flow. For students, designers, and research workers in mechanical science. (Published in England under title *Streamline* Flow.)

JOHN CARSTAIRS: Space Detective—Frank Belknap Long—*Fell*, 265 p., $2.50. A science fiction novel applying tomorrow's science to crime detection.

LABOR-MANAGEMENT RELATIONS: A Research Planning Memorandum—John G. Turnbull—*Social Science Research Council*, 112 p., paper, $1.25. A survey of the literature available at the present time.

TEACH THEM TO LIFT—Bureau of Labor Standards—*Gov't. Printing Office*, 8 p., illus., paper, 10 cents. Many tricks to lifting heavy articles so as not to cause hernia or strain.

MODERN BREEDS OF LIVESTOCK—Hilton M. Briggs—*Macmillan*, 772 p., illus., $5.50. Information on the various breeds of livestock that have been and are currently being used to improve our general levels of commercial production.

THE NATIONAL RESEARCH COUNCIL REVIEW 1949—*National Research Council*, 252 p., illus., paper, 75 cents. A review of the year's activities of the Canadian National Research Council.

A NEW NOTATION AND ENUMERATION SYSTEM FOR ORGANIC COMPOUNDS—G. Malcolm Dyson—*Longmans*, 2nd ed., 138 p., illus., paper, $2.25. A monograph which attempts to solve the difficulties of chemical nomenclature which become apparent each year, especially in classification and indexing.

THE OFFICIAL PREPARATIONS OF PHARMACY—Charles Oren Lee—*Mosby*, 528 p., illus., $5.50. Discusses the problems which pertain to the manufacture of the pharmaceutical preparations. For the somewhat advanced student of pharmacy.

ORGANIC CHEMISTRY IN PHARMACY—Charles O. Wilson and Ole Gisvold, Eds.—*Lippincott*, 622 p., illus., $9.00. A textbook describing organic pharmaceuticals on the undergraduate level.

PEDIGREES OF NEGRO FAMILIES—R. Ruggles Gates—*Blakiston*, 267 p., illus., $5.50. Brings together records of inheritance in more than 200 Negro families in this country, Canada, and the West Indies. The author proposes a new theory of inheritance of skin color.

PLANNING YOUR HOME WORKSHOP—Sam Brown, Ed.—*Popular Mechanics Press*, 128 p., illus., $2.50. Instructions for setting up the workshop you have always wanted. The book also discusses some of the problems of specialty shops. Information for both the veteran craftsman and beginners.

THE SEXUAL CRIMINAL: A Psychoanalytical Study—J. Paul De River—*Thomas*, 281 p., illus., $5.50. Intended for the medical and legal professions, this is a discussion of different types of sex crime. Remedies for the problem are not advanced.

A SHORT HISTORY OF SCIENCE AND SCIENTIFIC THOUGHT—F. Sherwood Taylor—*Norton*, 368 p., illus., $5.00. A narration of man's conquest of matter from application of the lever to the splitting of the atom. Included are readings from the great scientists from the Babylonians to Einstein. A student of the history of science will find the illustrations especially valuable.

THE STAR KINGS—Edmond Hamilton—*Fell*, 262 p., $2.50. A romance based upon space-travel in the future.

THE WAY TO GAME ABUNDANCE: With an Explanation of Game Cycles—Wallace Byron Grange—*Scribners*, 365 p., illus., $6.00. Gives details on how wild creatures live, why the number of game species fluctuates violently from time to time, and suggestions on what can be done to create wildlife abundance.

Science News Letter, November 19, 1949

MEDICINE

Stomach Moved to Throat To Save Cancer Patients

➤ AN operation in which the surgeon moves the patient's stomach almost into his throat, to save him from cancer death, was described at the meeting of the American Cancer Society in New York.

The operation is for patients with cancer of the esophagus, or gullet. Almost all the esophagus is removed. Then, instead of giving the patient a rubber tube substitute esophagus on the outside of his body, the surgeon moves the stomach up as far as necessary in the chest and connects it with the stump of the esophagus at its upper, or throat, end.

A substantial cure rate for cancer of the esophagus is being achieved by this operation, Dr. John H. Garlock of Mt. Sinai Hospital, New York, reported.

Science News Letter, November 19, 1949

CHEMISTRY-PUBLIC HEALTH

"Nerve Gas" Safety Seen In Our Masks and Clothing

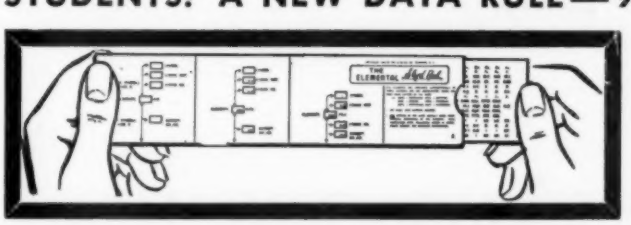
➤ THE "nerve gas" which Britons are reportedly warned against in their new civil defense training manual is nothing we need worry about.

Our gas masks will protect eyes and breathing tract against the "nerve gas" and our protective clothing will protect the skin against its effects, it was authoritatively learned from Army Chemical Corps sources in Washington.

It is well known that such gases exist and while our own work on them remains on the secret list, the "nerve gas" reported from London does not involve anything unknown to our Chemical Corps experts on gas warfare.

Science News Letter, November 19, 1949

STUDENTS! A NEW DATA RULE—96 ELEMENTS



- Symbols
- Atomic Wgts.
- Atomic No.
- Density
- B.P. & M.P.
- Valence

$1.00 POSTPAID NO C.O.D.'s

The Elemental Slyd-Rul gives concise, complete information on the physical properties of the 96 elements. Ideal for use in school or college . . . In Vinylite. Send check or money order for prompt delivery.

THE SLYD-RUL CO., 144-44 SANFORD AVE., FLUSHING, N.Y.

• New Machines and Gadgets •

For addresses where you can get more information on the new things described here, send a three-cent stamp to SCIENCE NEWS LETTER, 1719 N St., Washington 6, D. C. and ask for Gadget Bulletin 492. To receive this Gadget Bulletin without special request each week, remit $1.50 for one year's subscription.

SOAP SCRAP BAG makes it possible to use up small pieces of soap even to the last chip. It is a small net bag made from twisted paper cord rubberized with neoprene, and can be used in dishwashing, laundering or bathing, allowing lather to be produced freely by rubbing between the hands.

Science News Letter, November 19, 1949

WETTING MACHINE to apply adhesive paste to wall paper, recently patented, is a simple device with a box to hold the paste mixture and two rollers over which the paper is drawn. The first roller, which dips into the paste, brings the adhesive to the paper; the second completes its spreading.

Science News Letter, November 19, 1949

GOLF BALL COLLECTOR, for use on driving ranges where there are widely scattered balls to pick up, is a two-wheel affair, lawn-mower-like, with flexible fingers on the rotating axle to drive the balls up a ramp of wires to a receiving basket. Grass and dirt are sifted out in this newly patented device.

Science News Letter, November 19, 1949

VERTICAL BLINDS that combine curtains, draperies and blinds in one unit, as shown in the picture, have upright plastic strips that form the louvers. Pressure on a concealed control rod opens or closes the louver to any degree, and each of these fabric parts may be removed for cleaning by slipping it from tiny hooks at the bottom and top.

Science News Letter, November 19, 1949

ALUMINUM DIVING BOARD for the swimming pool has plenty of strength and spring for all sorts of fancy diving and, in addition, can never become waterlogged and is resistant even to saltwater corrosion. It is made of three sizes of square drawn tubing, telescoped together.

Science News Letter, November 19, 1949

PAINT BRUSH COVER, recently patented, is designed to keep the bristles in condition for reuse after the brush has already been used. It is an airtight elastic sheath with a reduced neck to fit the handle and a skirt at the other end which can be folded back to overlie one side of the sheath.

Science News Letter, November 19, 1949

FLAG LIFTER for rural free delivery mail boxes automatically raises the flag when the box is opened. The flag remains raised even when the box is closed until lowered manually by the housewife.

Science News Letter, November 19, 1949

HEARING AID, for use in auditoriums by persons with normal hearing, is a complete tubular unit, vest pocket size, which contains microphone, batteries and complete transmitting system to lead magnified volume direct into the ear. In use it is merely held to the head, with a conductor inserted in the outer ear.

Science News Letter, November 19, 1949

Do You Know?

Very few women drove automobiles before the *self-starter* was invented.

Golf balls owe their brilliant white to paints containing titanium oxide.

Birds have been observed at Yellowstone's Mammoth Hot Springs Terraces standing in the clouds of steam and seeming to be enjoying a Turkish bath.

Vanillin, ethavan and coumarin, all long used to enhance the *aromas* of food, are now used to add a fragrant odor to paper to be used to wrap candy, cookies and ice cream.

Smog is usually thought of as a combination of smoke and fog but smog forms over areas where there is little smoke; dusts and industrial fumes are thought to be responsible.

Wooden *beer barrels* have a life of about six years; the stainless chromium-nickel steel barrels now used have a life three times as long and they are only one-half as heavy.

Chemistry Show Book

Flares! Surprises! Bangs!

A handbook of recreational material—spectacular stunts for demonstration—and amusement, including three plays, complete with directions for staging over 50 chemical experiments.

A VALUABLE HANDBOOK FOR
Teachers • Chemists • Students

Enclosed please find $_____ for _____copies of the CHEMISTRY SHOW BOOK as marked below:

____ $2.00 cloth-bound.

____ $1.00 paper bound.

NOTE: **Subscribers to CHEMISTRY magazine have received a paper-bound copy as their combined summer number of the magazine.**

SNL PRIORITY ORDER

SCIENCE SERVICE
1719 N Street N. W. • Washington 6, D. C.

To renew your Science News Letter subscription for one year—$5.50—please make corrections in your name and address imprint below if needed, clip and enclose in an envelope. Lower line shows date of expiration of your subscription.

ENTER MY SUB TO SCI LIBRARY
TECHNOLOCK DEPT
69 PUTNAM AVE
DETROIT 2 MICH
DEC 26 49
1967